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UTILITY PATENT APPLICATION TRANSMITTAL
(Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.	Total Pages in this Submission
2273/102	20

TO THE ASSISTANT COMMISSIONER FOR PATENTS
Box Patent Application
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

APPARATUS AND METHOD TO ENHANCE MOTOR VEHICLE SAFETY

and invented by:

Thomas A. Gotauco

If a CONTINUATION APPLICATION, *check appropriate box and supply the requisite information:*

☒ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: 09/259,430

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 9 pages and including the following:
   - a. ☒ Descriptive Title of the Invention
   - b. ☒ Cross References to Related Applications *(if applicable)*
   - c. ☐ Statement Regarding Federally-sponsored Research/Development *(if applicable)*
   - d. ☐ Reference to Microfiche Appendix *(if applicable)*
   - e. ☒ Background of the Invention
   - f. ☒ Brief Summary of the Invention
   - g. ☒ Brief Description of the Drawings *(if drawings filed)*
   - h. ☒ Detailed Description
   - i. ☒ Claim(s) as Classified Below
   - j. ☒ Abstract of the Disclosure

UTILITY PATENT APPLICATION TRANSMITTAL
(Small Entity)

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2273/102
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20

Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*

   a. ☒ Formal b. ☐ Informal Number of Sheets 2

4. ☒ Oath or Declaration

   a. ☐ Newly executed *(original or copy)* ☐ Unexecuted

   b. ☒ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*

   c. ☒ With Power of Attorney ☐ Without Power of Attorney

   d. ☐ *DELETION OF INVENTOR(S)*
   Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. 1.63(d)(2) and 1.33(b).

5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. ☐ Computer Program in Microfiche

7. ☐ Genetic Sequence Submission *(if applicable, all must be included)*

   a. ☐ Paper Copy

   b. ☐ Computer Readable Copy

   c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☐ Assignment Papers *(cover sheet & documents)*

9. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)*

10. ☐ English Translation Document *(if applicable)*

11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS Citations

12. ☐ Preliminary Amendment

13. ☒ Acknowledgment postcard

14. ☒ Certificate of Mailing

    ☐ First Class ☒ Express Mail *(Specify Label No.):* EL502340354US

UTILITY PATENT APPLICATION TRANSMITTAL
(Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
2273/102
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Accompanying Application Parts (Continued)

15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*

16. ☒ Small Entity Statement(s) - Specify Number of Statements Submitted: One

17. ☐ Additional Enclosures *(please identify below):*

Fee Calculation and Transmittal

CLAIMS AS FILED

For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	11	- 20 =	0	x $9.00	$0.00
Indep. Claims	3	- 3 =	0	x $39.00	$0.00
Multiple Dependent Claims (check if applicable) ☐					$0.00
				BASIC FEE	$345.00
OTHER FEE *(specify purpose)*					$0.00
				TOTAL FILING FEE	$345.00

☒ A check in the amount of $345.00 to cover the filing fee is enclosed.

☒ The Commissioner is hereby authorized to charge and credit Deposit Account No. 19-4972 as described below. A duplicate copy of this sheet is enclosed.

- ☐ Charge the amount of as filing fee.
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- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

Dated: July 5, 2000

Herbert A. Newborn

Signature

Herbert A. Newborn
Reg. No. 42,031
Bromberg & Sunstein LLP

2101

PATENT TRADEMARK OFFICE

cc:

CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10) Applicant(s): **Gotauco**			Docket No. **2273/102**
Serial No. **Not yet Assigned**	Filing Date **Herewith**	Examiner **Not yet Assigned**	Group Art Unit **Not yet Assigned**

Invention: **APPARATUS AND METHOD TO ENHANCE MOTOR VEHICLE SAFETY**

I hereby certify that this **Continuation Patent Application and documents referenced therein**
(Identify type of correspondence)

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to: The Assistant Commissioner for Patents, Washington, D.C. 20231 on

July 5, 2000
(Date)

Herbert A. Newborn
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Herbert A. Newborn
(Signature of Person Mailing Correspondence)

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Atty Dk : 2273/101

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS - INDEPENDENT INVENTOR

Applicant(s): Thomas Gotanco

Serial No: not yet assigned

Date Filed: herewith

For: APPARATUS AND METHOD TO STIMULATE A SLEEPY DRIVER

As a below-named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code with regard to the above invention.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- no such individual, small business concern, nonprofit organization

I acknowledge the duty to file, in this application, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small business entity is no longer appropriate.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Inventor: Thomas Gotanco

Signature: Thomas H. Gotanco

Date: March 1, 1999

83251

APPLICATION FOR UNITED STATES PATENT

FOR

APPARATUS AND METHOD TO ENHANCE MOTOR VEHICLE SAFETY

Inventor: Thomas A. Gotauco
335 Plain Meetinghouse Road
West Greenwich, RI 02817

Attorney Docket: 2273/102

Prepared by:
Bromberg & Sunstein LLP
125 Summer Street
Boston, MA 02110-1618
(617) 443-9292

Attorney Docket 2273/102

APPARATUS AND METHOD TO ENHANCE MOTOR VEHICLE SAFETY

Related U. S. Application(s)

This application is a continuation of U.S. application serial no. 09/259,430, filed March 1, 1999, for an invention by Gotauco. U.S. application serial no. 09/259,430 is hereby incorporated herein by reference.

Technical Field

The present invention relates to motor vehicle safety enhancement and, more specifically, to safety enhancers which may not be prematurely disabled. In particular, a stimulator to rouse a sleepy motor vehicle driver which cannot be disabled without turning the motor off is described.

Background Art

Many motor vehicle safety enhancement devices have been developed. The effectiveness of most, if not all, such devices may easily be compromised by actions of those whom the devices are intended to protect. For example, seat belts must be fastened if they are to protect a user from sudden deceleration and impact. Seat belts should not be unbuckled until the vehicle is safe and, usually, stopped. Emergency flashers should not be prematurely deactivated.

Falling asleep while operating a motor vehicle remains a major cause of personal injury and property damage. The consequences of falling asleep are more widespread than those experienced by the motor vehicle operator. In particular, delivery and trucking companies would benefit from reduced liability insurance costs if devices were effective to reduce or eliminate the chance of their drivers causing harm to themselves, others, and their valuable cargo.

Summary of the Invention

Embodiments of the present invention provide motor vehicle safety enhancement devices which, once activated, may not be prematurely deactivated.

In an embodiment, an electrically controllable safety device for use by an occupant of a motor vehicle includes a safety enhancer and a controller. The controller and the safety enhancer are electrically coupled to the vehicle's electrical ignition system, so that the controller may only activate the safety enhancer while the motor is on and, once activated, the safety enhancer may only be deactivated by turning the motor off.

In another embodiment, a stimulator for use by a sleepy driver of a vehicle includes a signal generator capable of rousing the driver and a controller to activate the signal generator. The controller and the signal generator are electrically coupled to a motor vehicle ignition system, so that the controller may only activate the signal generator while the motor is on and, once activated, the signal generator may only be deactivated by turning the motor off. The signal generator may include a buzzer and a warning lamp. The controller may include a momentary switch, a relay, and a diode.

In yet another embodiment, an electrically controllable safety device for use by an occupant of a vehicle is provided. The vehicle is powered by a motor activatable by an electrical ignition system which includes an ignition switch having an ignition pole electrically coupled with a power source and an ignition throw electrically coupled with a motor starting means. The device includes a manually activatable switch having a switch pole and a switch throw with the switch pole electrically coupled to the ignition throw. The device also has a changeover relay with two input terminals, a plurality of output terminals, an inductor, and a relay switch. The first input terminal is externally electrically coupled to the ignition throw and is internally electrically coupled to a relay pole of the relay switch. The second input terminal is externally electrically coupled to the switch throw and internally electrically coupled to a first inductor end while a second inductor end is internally electrically coupled to a first output terminal which is externally coupled to ground. An electrical connection is included between the second input terminal and an active output terminal of the changeover relay and a safety enhancer is externally electrically coupled to the

active output terminal. Turning the manually activatable switch on while the ignition switch is on instantaneously powers the inductor causing the relay switch to switch positions from a first position coupled to an inactive throw, which is internally electrically coupled to an inactive output terminal, to a second position coupled to an active throw internally electrically coupled to the active output terminal coupled to the safety enhancer so that, in addition to flow to the enhancer, current from the electrical ignition system flows through the inductor to keep the inductor powered.

Methods of using such electrically controllable safety devices are provided in further embodiments of the present invention.

Brief Description of the Drawings

Fig. 1 is a flow diagram illustrating the operation of a motor vehicle safety enhancement device in accordance with an embodiment of the invention.

Fig. 2 is an electrical circuit diagram for a stimulator in accordance with an embodiment of the present invention.

Detailed Description of Specific Embodiments

Fig. 1 shows how a motor vehicle safety enhancement device **10**, in accordance with an embodiment of the invention, would be operated. Device **10** includes a safety enhancer **11** and a controller **12**. Examples of safety enhancers include a stimulator described below as well as safety belts and their associated couplings and emergency flashing lights. Use of and design of other safety enhancers not specifically mentioned, when controlled in the manner disclosed below, are made without departing from the spirit and the scope of the present invention. The device **10** is activatable only after the vehicle ignition system **1** is turned on and the motor **2** is, ostensibly, running. Access to an accessible portion **13** of controller **12** is provided so that the moment at which the safety enhancer **11** may be activated is controlled by the driver or passenger. Theoretically, remote access to controller **11** could be provided using RF generation and reception or other forms of contactless activation eliminating involvement by the driver or passenger. Accessible portion **13** may include a simple toggle

switch, a momentary switch, or may, within the scope of the present invention, be non-mechanical. It may be voice-actuated or otherwise turned on by stimuli known in the art of electrical switching. Controller **12** may, preferably, include other unaccessible components. The operator of an accessible portion **13** of controller **12** may turn safety enhancer **11** on; an analogous attempt to turn off the safety enhancer **11** will fail as safety enhancer **11** is electrically coupled with the vehicle ignition system **1** so that safety enhancer **11** may only be deactivated by shutting the motor **2** off by shutting off system **1**. Once the accessible portion **13** is on (with system **1** on), it is, effectively, eliminated from the circuit and cannot be used to defeat safety enhancer **11**. Thus, it is the combination of system **1**, the accessible portion **13**, and any unaccessible portion which make up the controller **12**. A practical advantage of using a momentary switch for the accessible portion **13** is that such a switch will not continue to close the circuit after manual or other release by the operator. If a toggle or other type of switch were used, the operator might, inadvertently, leave the switch on after the vehicle were safely stopped. The safety enhancement device **10** would, in such a situation, disadvantageously reactivate immediately after system **1** was restarted.

Device **10** may, for example, stimulate a sleepy driver, enhance the safety of seat belts, or control other accessories or systems. Fig. 2 is a circuit diagram for a stimulator **100** for rousing a sleepy motor vehicle driver. The diagram includes dashed lines surrounding subelements of stimulator **100**. Vehicle ignition system **1** is represented by ignition switch **20** electrically coupled at ignition pole **22** with a power source **21** for powering motor **2** and other devices. Ignition throw **23** is electrically coupled to both an input terminal **30** of changeover relay **3** (path **B**) and, downstream, to switch pole **24** of manually activatable switch **130**. Switch **130** represents the accessible portion **13** of the controller **12**, while relay **3** is an unaccessible portion of controller **12**. While motor **2** is running (and ignition switch **20**) are on, a driver or passenger may activate switch **130**. When the connection between switch pole **24** and switch throw **25** is made, current may flow through path **A** into relay input terminal **86**. Prior to and after activation of path **A**, current flows through path **B** to relay pole **33** of relay switch **40**. Prior to activation of path **A**, relay switch **40**, shown as single pole, double throw, couples relay pole **33** with first throw **34**. First throw **34** is internally

electrically coupled to inactive output terminal **87A**. Activation of path **A**, allows current to flow from relay input terminal **86** into a winding (comprised of inductor **31** coupled in parallel with resistor **32**) and out of relay **3** at output terminal **85** to ground **37**. The effect is to turn inductor **31** on, thereby switching relay switch **40** so that, as long as inductor **31** is on, relay switch **40** remains in a position coupling relay pole **33** to second throw **35**. This is the origin of the designation of this type of relay **3** as a changeover relay. Safety enhancer **11** (in this case, buzzer **4** and warning lamp **5**) are powered while relay switch **40** remains in this position as the circuit between second throw **35** and active relay output terminal **87** remains complete. An electrical connection is included between relay input terminal **86** and active relay output terminal **87** upstream from buzzer **4** and warning lamp **5**. Preferably, a diode **36**, is placed in this connection path to protect these relatively high current lines impeding flow back through relay switch **40**. This electrical connection through diode **36** maintains inductor **31** in the on state when switch **130** is turned off. Current no longer need pass through path **A**, relay switch **40** remains in position, and buzzer **4** and warning lamp **5** remain powered until ignition switch **20** is opened. When ignition switch **20** is opened, flow through path **B** stops, inductor **31** shuts off, and relay switch **40** shifts to its first position coupling relay pole **33** to first (inactive) throw **34**, in turn, opening the circuit to buzzer **4** and warning lamp **5**. For example, if accessible switch **130** is a spring-loaded momentary switch, inductor **31** remains powered after contact between pole **24** and throw **25** is lost. This illustrates a benefit of using a momentary switch **130** in that an operator may easily leave switch **130** on, causing buzzer **4** and warning lamp **5** to turn on upon restart of ignition system **1**.

For example, a motor vehicle driver notices that he is becoming sleepy while driving. The driver activates a switch readily accessible to him. It may be mounted on or near the dashboard. It may be a push button, lighted momentary switch. Once activated, buzzer **4** and warning lamp **5** become active, rousing the driver. He, then, has a chance to safely pull the vehicle off the road. Buzzer **4** and warning lamp **5** remain active until the ignition system **1** is turned off. The circuit diagram of Fig. 2 may, while remaining within the scope of the present invention, be modified to include activation of other safety enhancers which may not be

prematurely disabled. Other safety enhancers, such as seat belt controls and emergency flashers, may be so included in the safety enhancement device **10**.

Accessible switch **130** may preferably be a lighted momentary switch found in many electronic supply venues. Relay **3** may be a 12 volt, 20/30 ampere rated model for which a Bosch No. 0-332-209-150 is well suited. Electrical relays are commonly used in conjunction with motor vehicle accessories which draw relatively large amperage. Within the framework of the vehicle's overall electrical system, if accessories draw an inordinate amount of current, resultant undesirable voltage drops can compromise other system functions. Reference numbers **30, 85, 86, 87,** and **87A** are the numerals actually used on this particular changeover relay. Diode **36** may be general purpose (e.g. an NTE116 silicon) rectifier having a maximum peak surge forward current rating of 30 amperes. Buzzer **4** may be a 6-16 volt DC, 100 decibel piezobuzzer (e.g. Radio Shack No. 273-070). Warning lamp **5** should be 12 volt DC.

Although the invention has been described with reference to several preferred embodiments, it will be understood by one of ordinary skill in the art that various modifications can be made without departing from the spirit and the scope of the invention, as set forth in the claims hereinbelow.

What is claimed is:

1. An electrically controllable safety device for use by an occupant of a vehicle, the vehicle powered by a motor activatable by an electrical ignition system, the safety device comprising:

a safety enhancer; and

a controller;

wherein the controller and the safety enhancer are electrically coupled to the ignition system, so that the controller may only activate the safety enhancer while the motor is on and, once activated, the safety enhancer may only be deactivated by turning the motor off.

2. A stimulator for use by a sleepy driver of a vehicle, the vehicle powered by a motor activatable by an electrical ignition system, the stimulator comprising:

a signal generator capable of rousing the driver; and

a controller to activate the signal generator;

wherein the controller and the signal generator are electrically coupled to the ignition system, so that the controller may only activate the signal generator while the motor is on and, once activated, the signal generator may only be deactivated by turning the motor off.

3. A stimulator according to claim 2, wherein the signal generator includes a buzzer.

4. A stimulator according to claim 2, wherein the signal generator includes a warning lamp.

5. A stimulator according to claim 3, wherein the signal generator includes a warning lamp.

6. A stimulator according to claim 2, wherein the controller includes a momentary switch.

7. A stimulator according to claim 6, wherein the controller further includes a relay.

8. A stimulator according to claim 7, wherein the controller further includes a diode.

9. A stimulator according to claim 8, wherein the relay is a changeover relay.

10. A method of using an electrically controllable safety device in a vehicle, the vehicle powered by a motor activatable by an electrical ignition system, the method comprising:

powering the motor with the system,

activating a controller to turn the device on so that the system keeps the device on; and

switching off the system to shut off the motor and the device.

11. A method according to claim 10, wherein the device is a stimulator for use by a sleepy driver.

Abstract

The present invention provides motor vehicle safety enhancement devices which, once activated, are not prematurely deactivated. In an embodiment, an electrically controllable safety device for use by an occupant of a motor vehicle includes a safety enhancer and a controller. The controller and the safety enhancer are electrically coupled to the vehicle's electrical ignition system, so that the controller may only activate the safety enhancer while the motor is on and, once activated, the safety enhancer may only be deactivated by turning the motor off. A stimulator to rouse a sleepy driver of a vehicle is provided including a signal generator capable of rousing the driver and a controller to activate the signal generator. The controller may include a momentary switch, a relay, and a diode.

[113611]

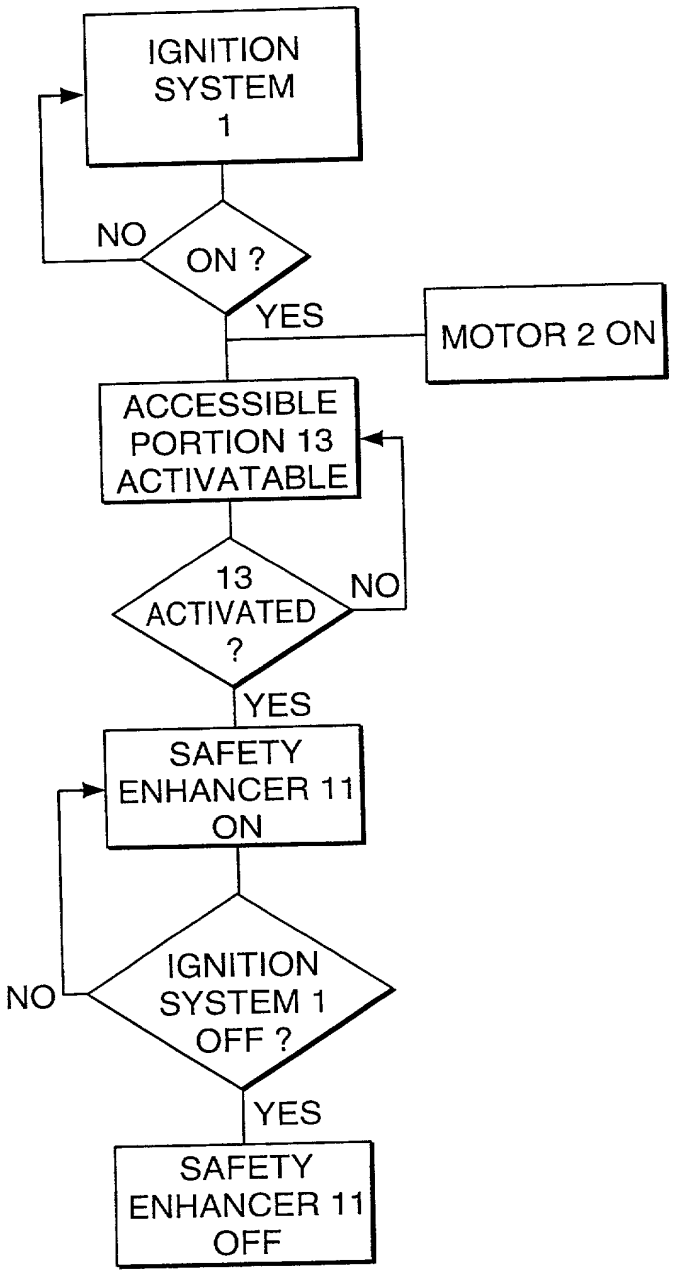
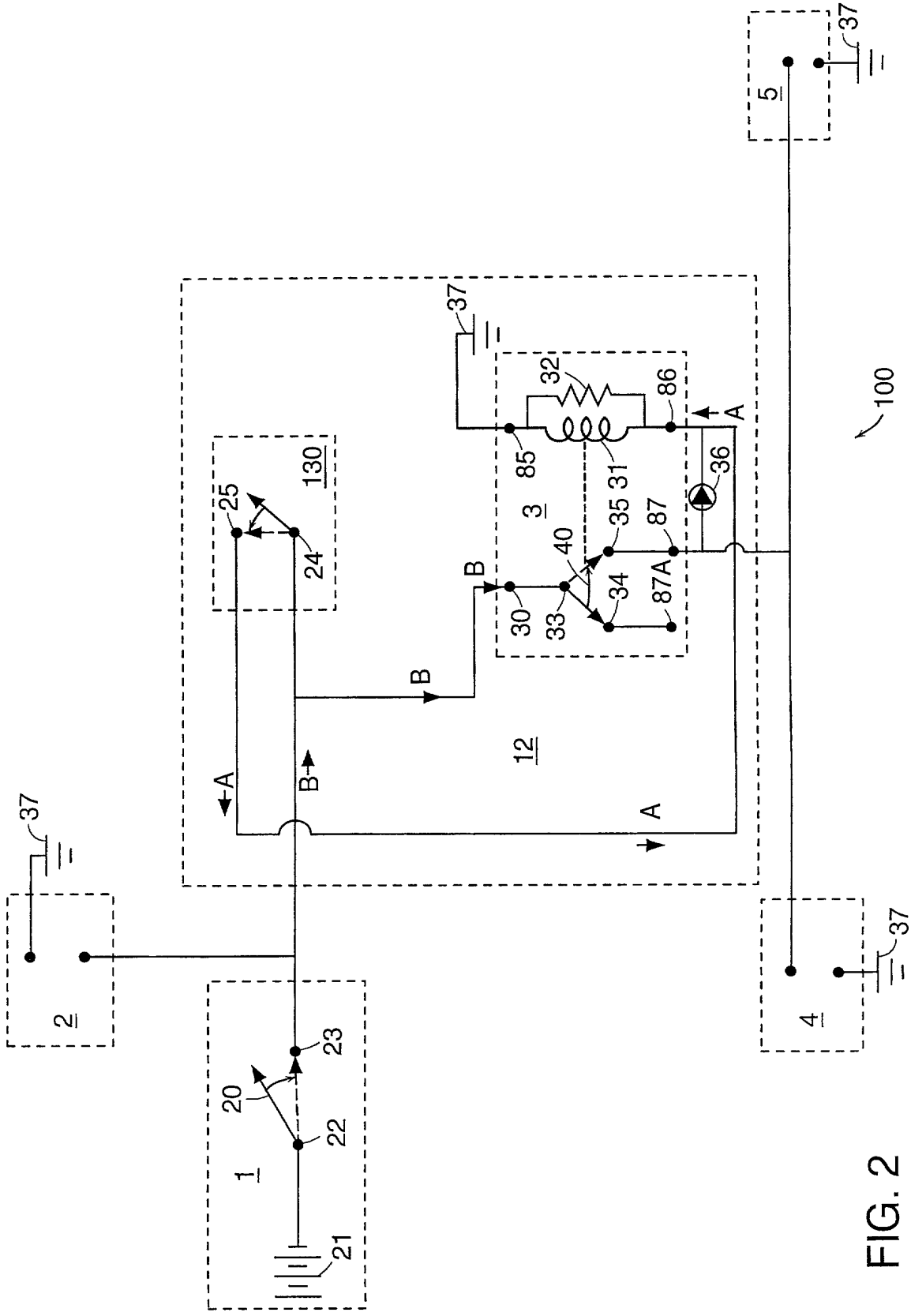

IGNITION SYSTEM 1
NO
ON ?
YES
MOTOR 2 ON
ACCESSIBLE PORTION 13 ACTIVATABLE
13 ACTIVATED ?
NO
YES
SAFETY ENHANCER 11 ON
NO
IGNITION SYSTEM 1 OFF ?
YES
SAFETY ENHANCER 11 OFF

FIG. 1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85
86
87
87A
A
B

FIG. 2

Docket No.
2273/101

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

APPARATUS AND METHOD TO STIMULATE A SLEEPY DRIVER

☐ the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____

and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Not Claimed
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

Bruce D. Sunstein	27,234
Robert M. Asher	30,445
Timothy M. Murphy	33,198
Harriet M. Strimpel	37,008
Samuel J. Petuchowski	37,910
Steven G. Saunders	36,265
Herbert A. Newborn	42,031
Jay Sandvos	P43,900
Jeffrey T. Klayman	39,250
Jean Tibbetts	43,193

Send Correspondence to: Bromberg & Sunstein LLP
125 Summer Street
Boston, MA 02110-1618
Attn: Herbert A. Newborn

Direct Telephone Calls to: *(name and telephone number)*
Herbert A. Newborn at (617) 443-9292

Full name of sole or first inventor
Mr. Thomas Gotsuco

Sole or first inventor's signature — Date 3/1/99

Residence
335 Plain Meetinghouse Road, West Greenwich, RI 02817

Citizenship
U.S.A.

Post Office Address
same as residence

Full name of second inventor, if any

Second inventor's signature — Date

Residence

Citizenship

Post Office Address